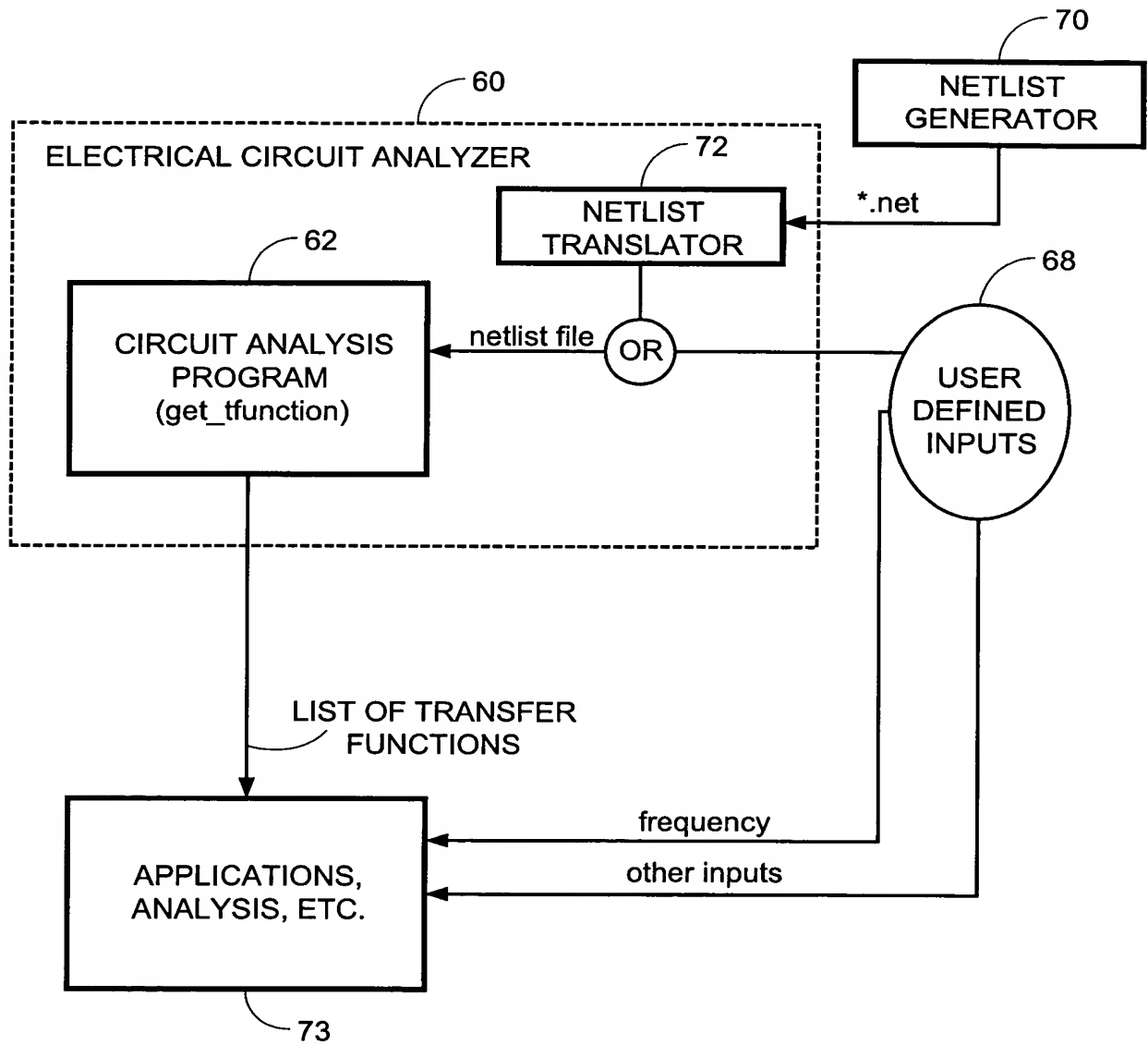
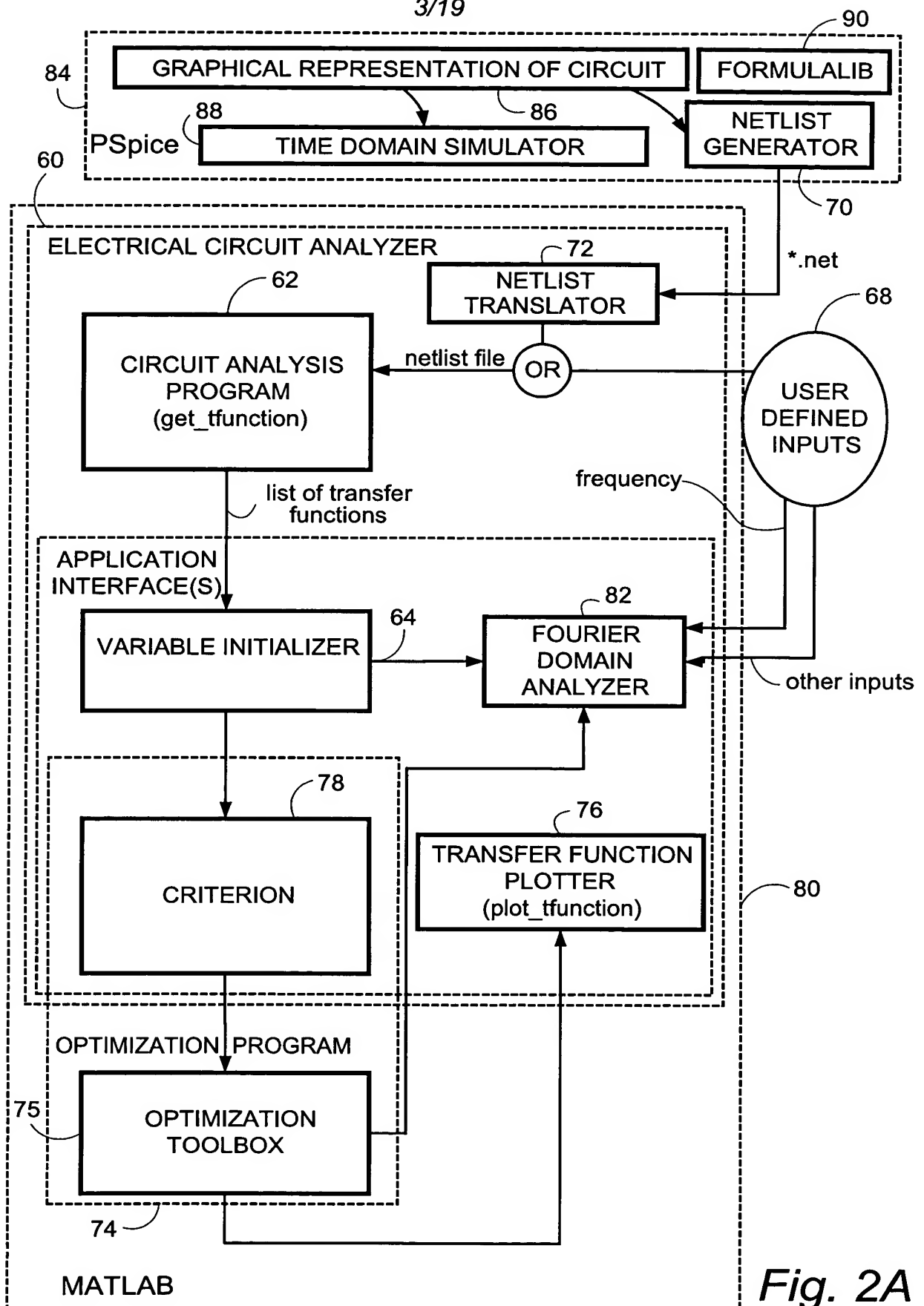
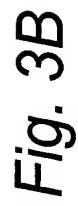


Fig. 1

*Fig. 2*





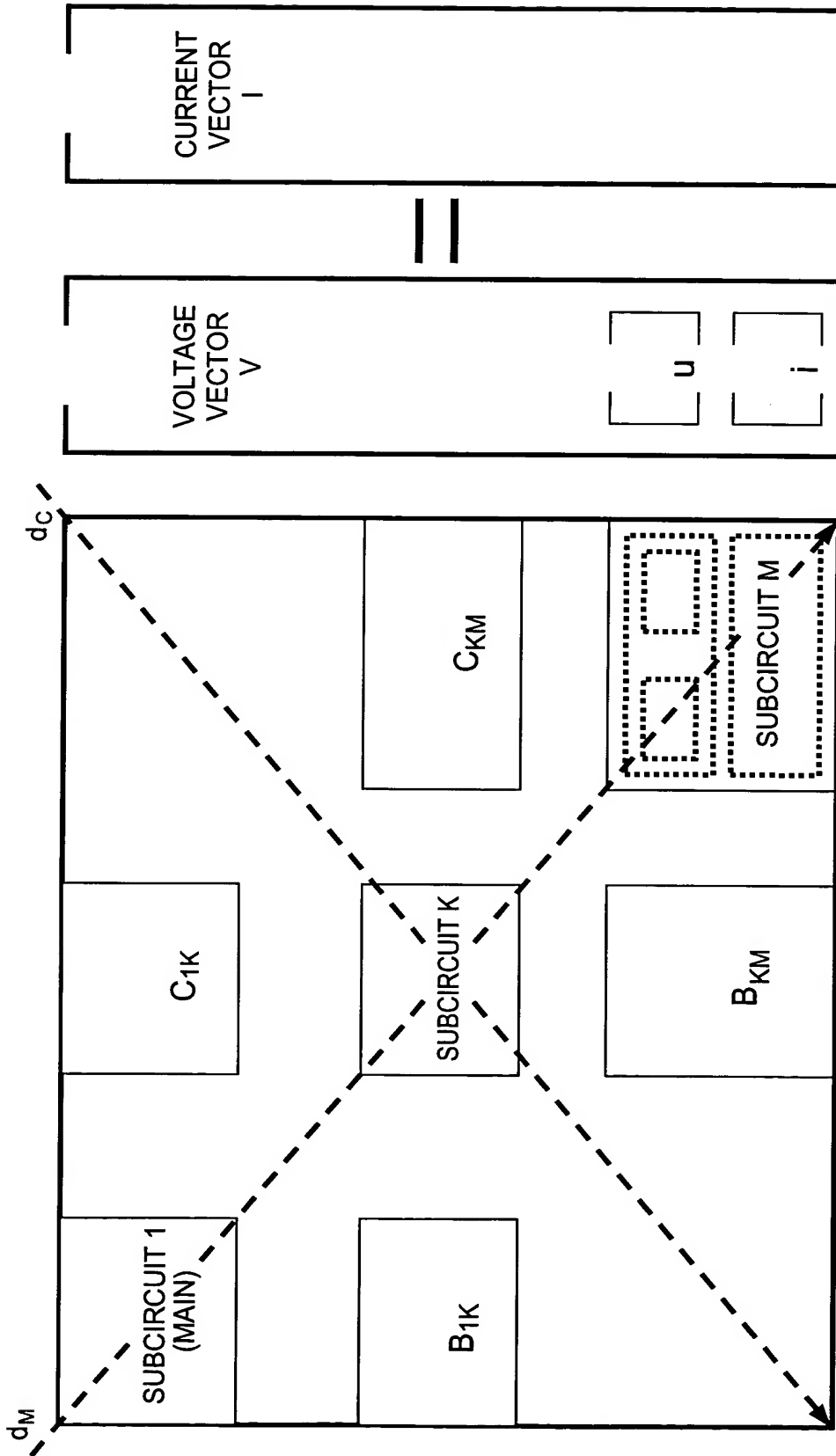


Fig. 3C



Fig. 4A(1)(a)

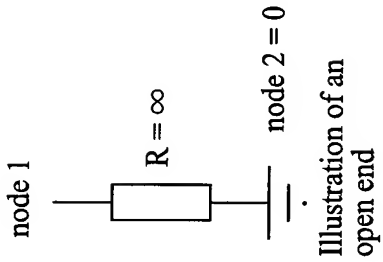


Fig. 4A(1)(b)



Fig. 4B(1)



Fig. 4C(1)

	node1	node 2	RHS
cnode+	$\frac{1}{R}$	$-\frac{1}{R}$	
cnode-	$-\frac{1}{R}$	$\frac{1}{R}$	

Fig. 4A(2)

	node1	node 2	RHS
cnode+	$2\pi j f C$	$2\pi j f C$	
cnode-	$2\pi j f C$	$2\pi j f C$	

Fig. 4B(2)

	node1	node 2	RHS
cnode+	$\frac{1}{2\pi j f L}$	$-\frac{1}{2\pi j f L}$	
cnode-	$-\frac{1}{2\pi j f L}$	$\frac{1}{2\pi j f L}$	

Fig. 4C(2)



Fig. 4D(1)

	input	output	RHS
output	G	-1	

Fig. 4D(2)

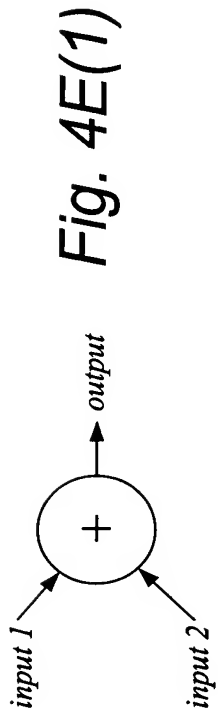


Fig. 4E(1)

	input 1	input 2	output	RHS
output	-1	-1	1	

Fig. 4E(2)



Fig. 4F(1)

	input 1	input 2	output	i	RHS
output				1	
br1	-1	-1			

Fig. 4F(2)

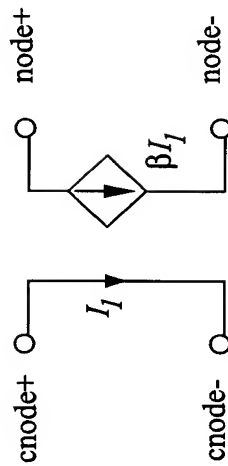


Fig. 4G(1)

	cnode+	cnode-	node+	node-	RHS
cnode+					1
cnode-					-1
node+					β
node-					β
br1	1	-1			

Fig. 4G(2)

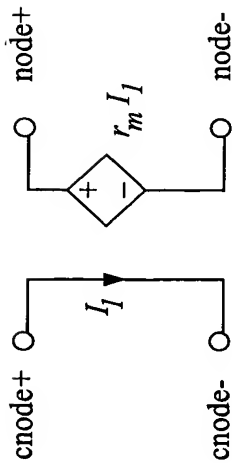


Fig. 4H(1)

	$cnode+$	$cnode-$	$node+$	$node-$	RHS
$cnode+$					1
$cnode-$					-1
$node+$					-1
$node-$					1
$br1$			-1	1	r_m
$br2$	1	-1			

Fig. 4H(2)

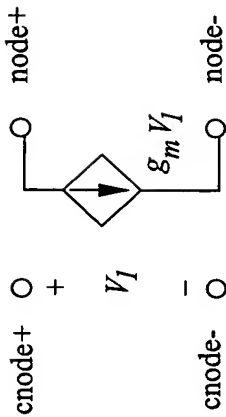


Fig. 4I(1)

	$cnode+$	$cnode-$	$node+$	$node-$	RHS
$cnode+$					
$cnode-$					-1
$node+$					1
$node-$					-1
$br1$		$-g_m$	g_m		

Fig. 4I(2)

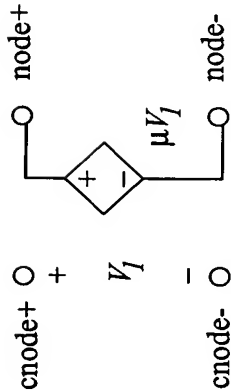


Fig. 4J(1)

	$cnode+$	$cnode-$	$node+$	$node-$	RHS
$cnode+$					
$cnode-$					1
$node+$					-1
$node-$					
$br1$		$-\mu$	μ	-1	

Fig. 4J(2)



Fig. 4K(1)

Fig. 4K(2)

	node 1	node 2	i	RHS
node1			1	
node 2			-1	
br1	1	-1		V

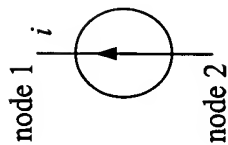


Fig. 4L(1)

Fig. 4L(2)

	node 1	node 2	i	RHS
node1			1	
node 2			-1	
br1	1	-1		V

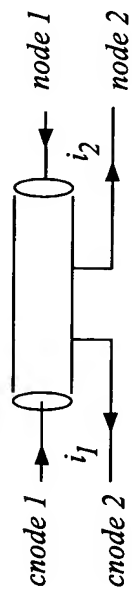


Fig. 4M(1)

Fig. 4M(2)

	cnode+	cnode-	node+	node-	i ₁	i ₂	RHS
cnode+					1		
cnode-					-1		
node+						1	
node-						-1	
br1	$\frac{k22}{k12}$	$-\frac{k22}{k12}$	$k21 - \frac{k11 \cdot k22}{k12}$	$\frac{k11 \cdot k22}{k12} - k21$	-1		
br2	$-\frac{1}{k12}$	$\frac{1}{k12}$	$\frac{k11}{k12}$	$-\frac{k11}{k12}$		-1	

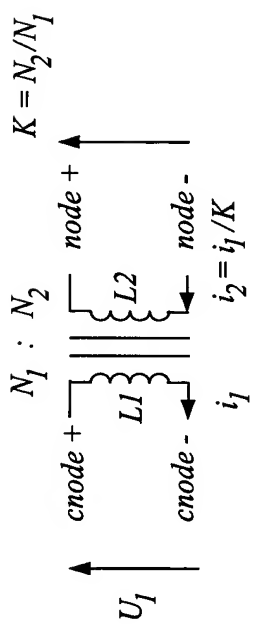


Fig. 4N(1)

	cnode+	cnode-	node+	node-	i_1	RHS
cnode+					1	
cnode-					-1	
node+					-1/K	
node-					1/K	
br1		K	-K	-1	1	

Fig. 4N(2)

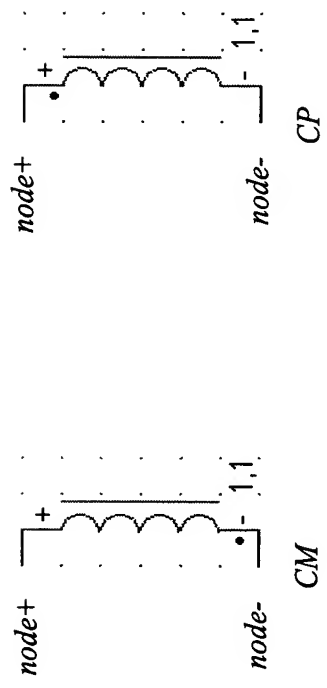


Fig. 4O(1)

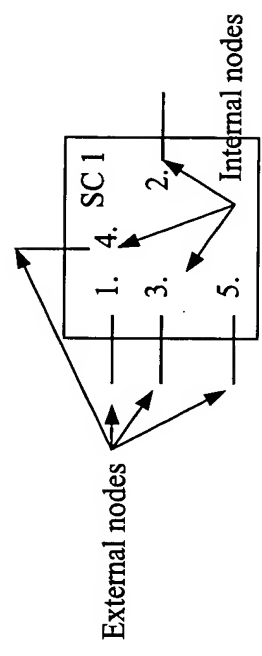


Fig. 4Q(1)

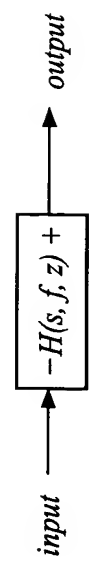


Fig. 4P(1)

	input	output	RHS
output	tfunc	-1	

Fig. 4P(2)

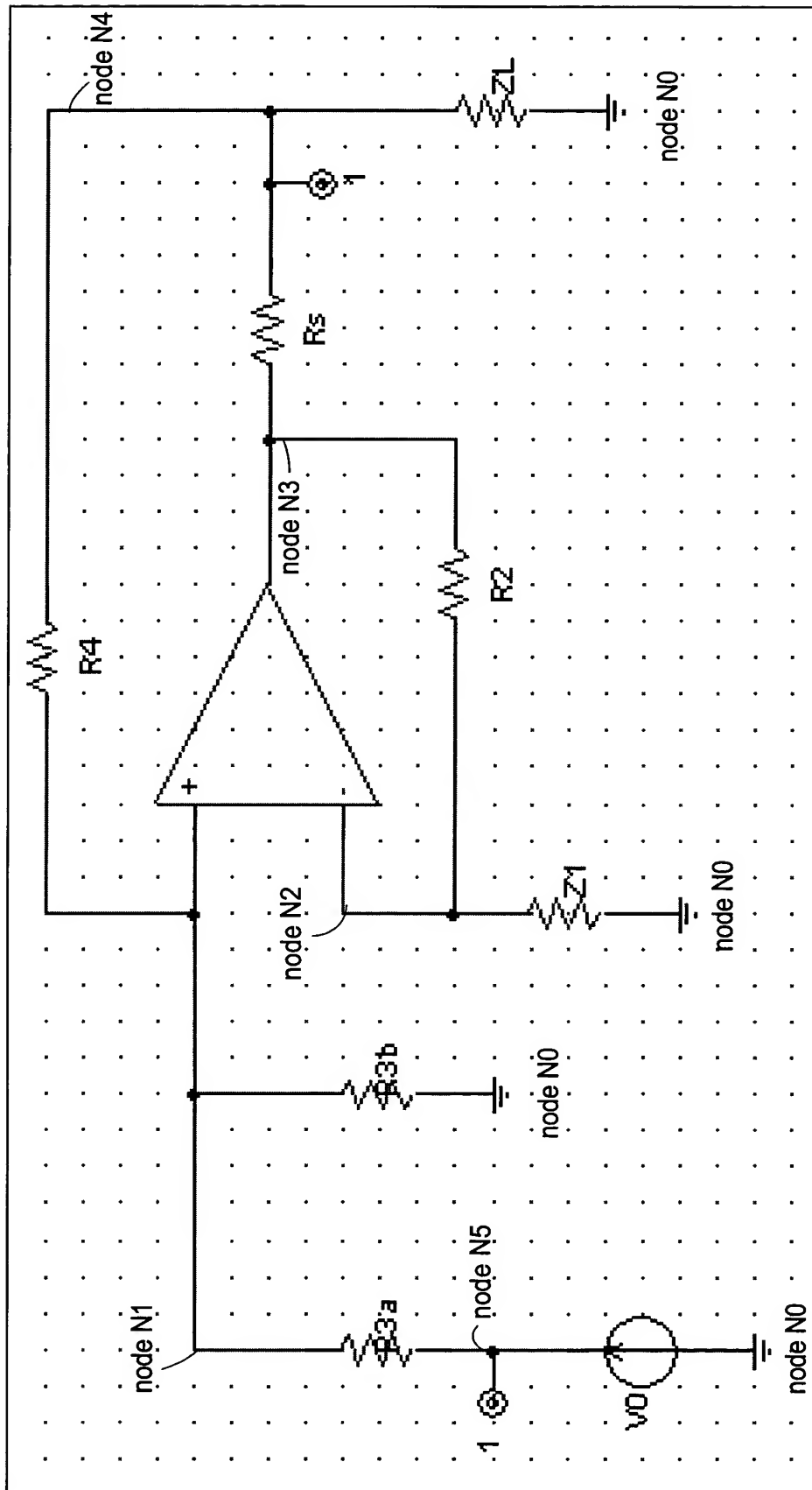


Fig. 5

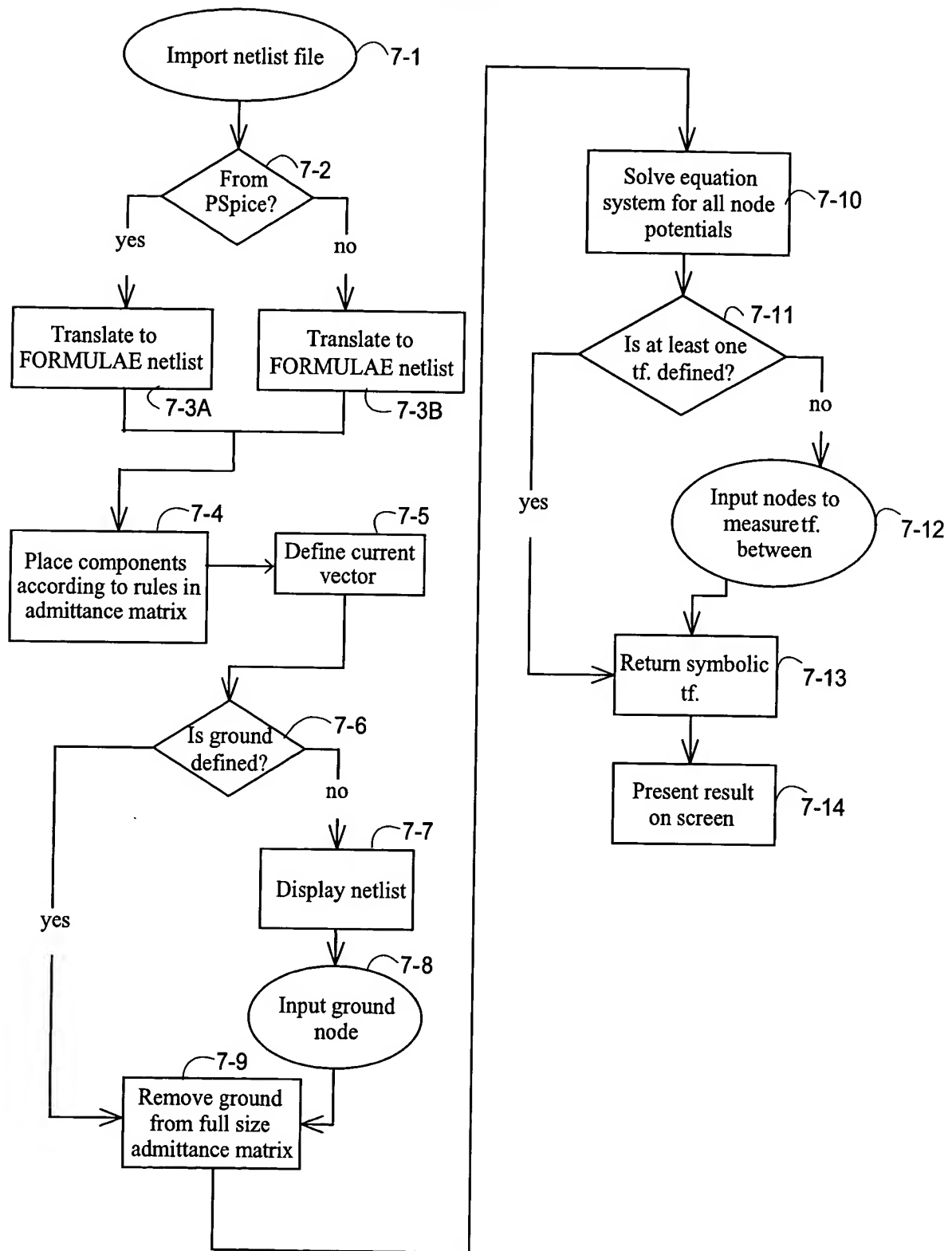


Fig. 7

MATLAB

File Edit View Web Window Help

Current Directory: D:\matlabR12\work\Edwin

```
>> test1_script
Loading netlist, and calculates transfer function...

Netlist:
[ 0, 1, R, R3b, 0, 0, 0, 0]
[ 0, 2, R, Z1, 0, 0, 0, 0]
[ 2, 3, R, R2, 0, 0, 0, 0]
[ 3, 4, R, Rs, 0, 0, 0, 0]
[ 1, 4, R, R4, 0, 0, 0, 0]
[ 0, 4, R, ZL, 0, 0, 0, 0]
[ 5, 1, R, R3a, 0, 0, 0, 0]
[ 1, 2, E, 0, 3, 0, 0, 0]
[ 5, 0, V, V0, 0, 0, 0, 0]

Transfer function:
[ R3b*ZL*(R2*R4+Z1*R4+Z1*Rs)/(-R3b*R3a*ZL*R2+Z1*Rs*R3b*R3a+Z1*R4*Rs*R3b+Z1*R4*Rs*R3a+Z1*ZL*

Fixing transfer function...
>> |
```

Ready

Fig. 8

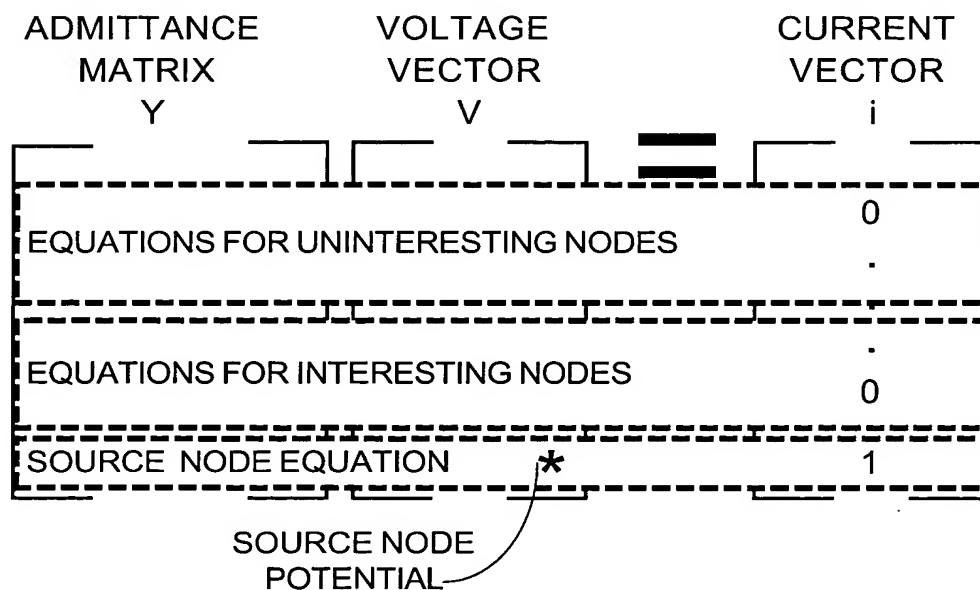
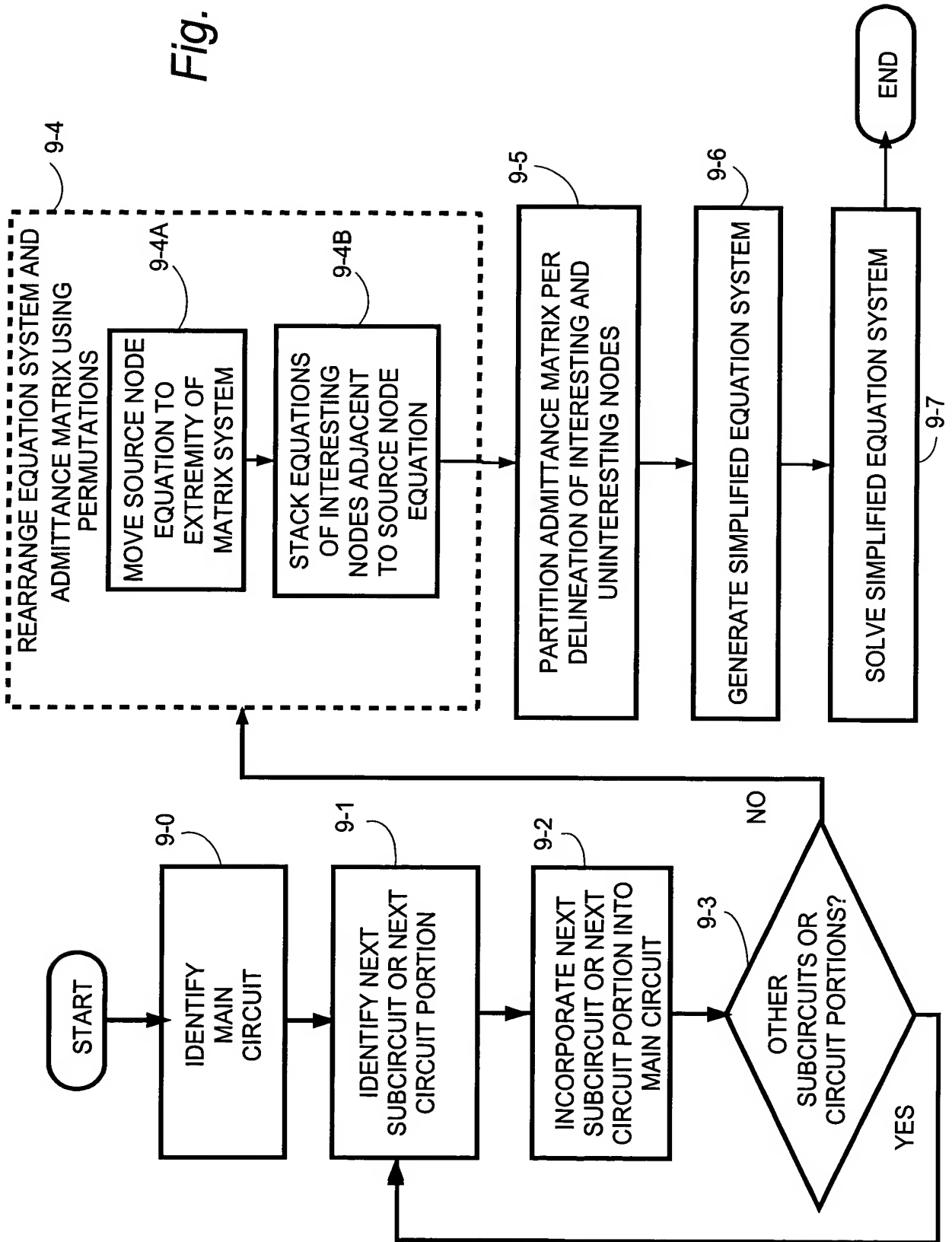
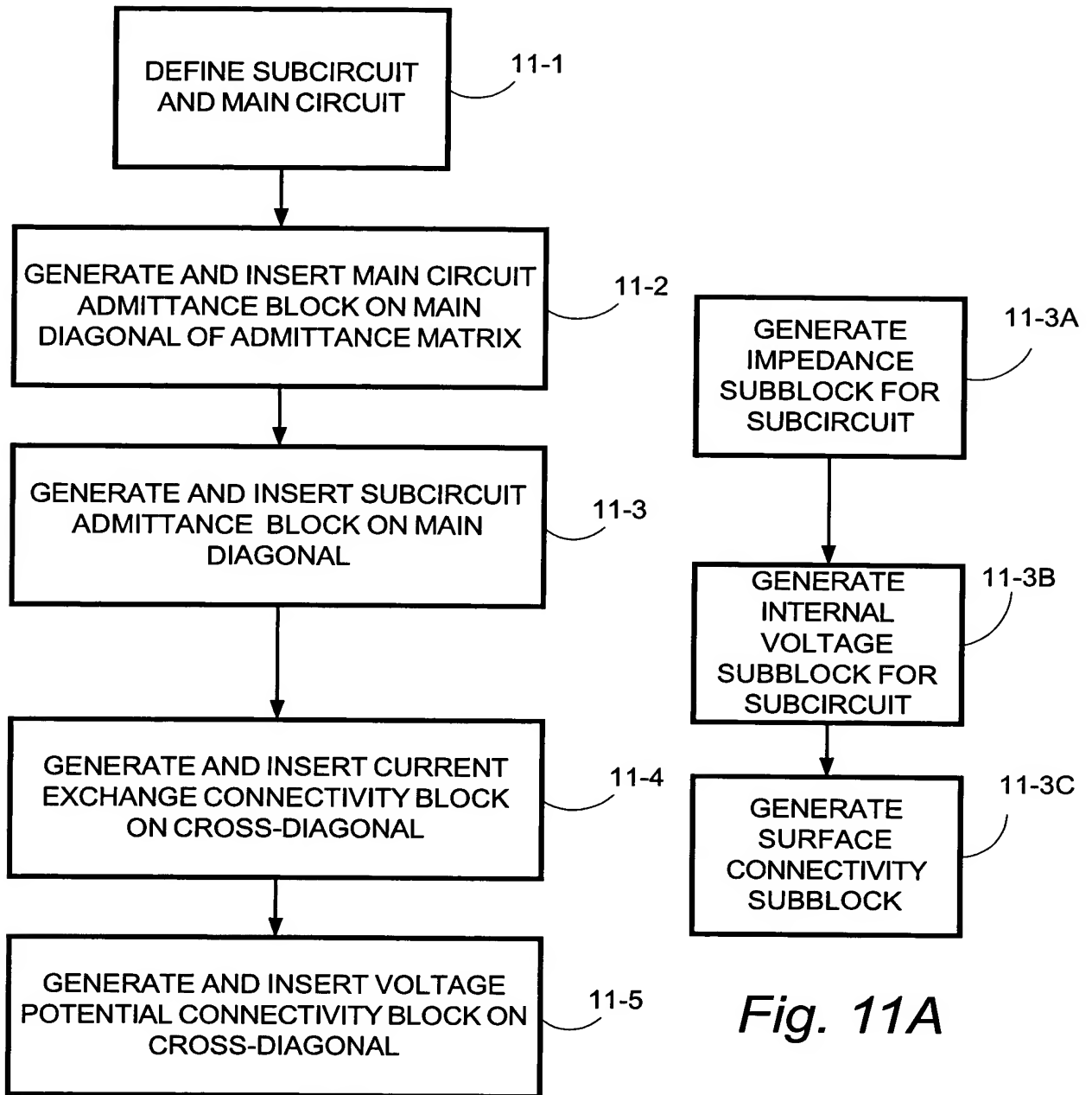


Fig. 10

Fig. 9



*Fig. 11**Fig. 11A*

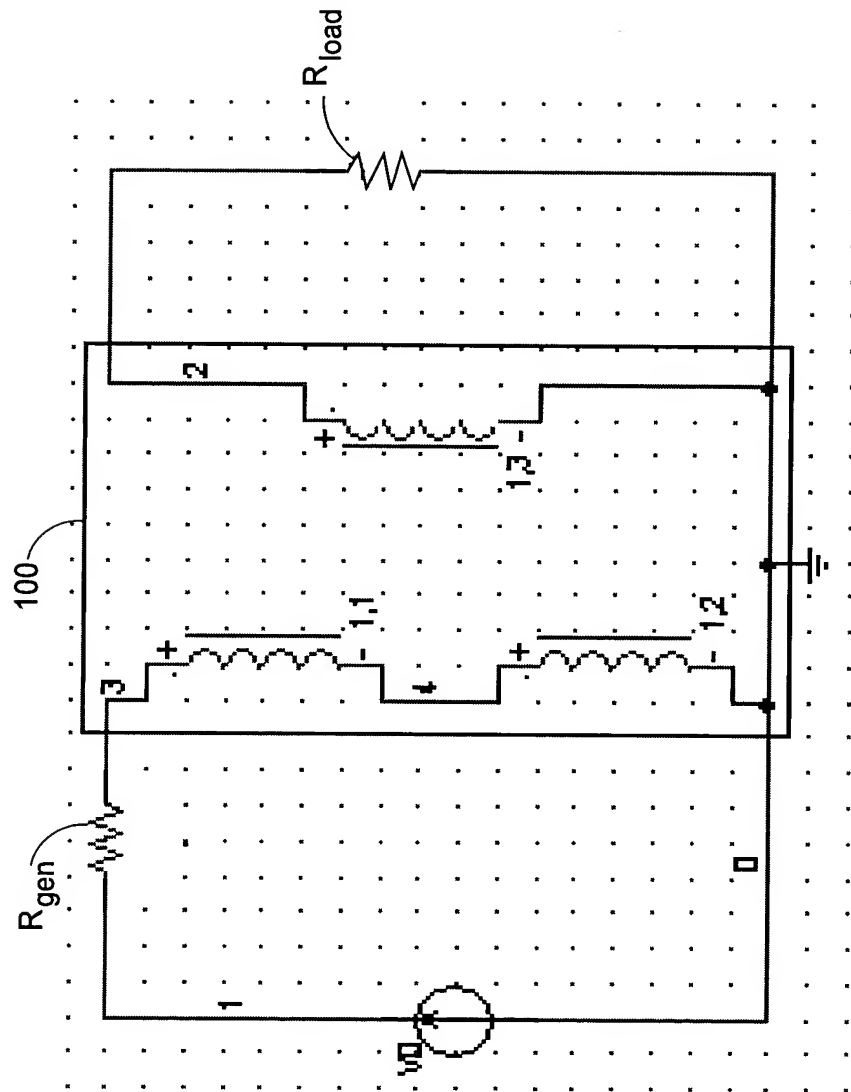


Fig. 12

Fig. 13

A						$C = B^T$				$-\tau$		Z	
V1	V2	V3	V4	V_gnd	I_e	V1,1	V1,2	V1,3	I3,4	I4,0	I2,0		
1/R_gen,	0,	-1/R_gen,	0,	0,	1,	0,	0,	0,	0,	0,	0,	0	0
0,	1/R_load,	0,	0,	-1/R_load,	0,	0,	0,	0,	0,	0,	0,	1	1
-1/R_gen,	0,	1/R_gen,	0,	0,	0,	0,	0,	0,	1,	0,	0,	0	0
0,	0,	0,	0,	0,	0,	0,	0,	0,	-1,	1,	0,	0	0
0,	-1/R_load,	0,	0,	1/R_load,	-1,	0,	0,	0,	0,	-1,	0,	-1	-1
1,	0,	0,	0,	-1,	0,	0,	0,	0,	0,	0,	0,	0	0
0,	0,	0,	0,	0,	0,	-1,	0,	0,	$2 \cdot i \cdot \pi \cdot f \cdot L1$,	$2 \cdot i \cdot \pi \cdot f \cdot k12 \cdot (L1 \cdot L2)^{(1/2)}$,	$2 \cdot i \cdot \pi \cdot f \cdot k13 \cdot (L1 \cdot L3)^{(1/2)}$		
0,	0,	0,	0,	0,	0,	0,	-1,	0,	$2 \cdot i \cdot \pi \cdot f \cdot k21 \cdot (L1 \cdot L2)^{(1/2)}$,	$2 \cdot i \cdot \pi \cdot f \cdot L2$,	$2 \cdot i \cdot \pi \cdot f \cdot k23 \cdot (L2 \cdot L3)^{(1/2)}$		
0,	0,	0,	0,	0,	0,	0,	0,	-1,	$2 \cdot i \cdot \pi \cdot f \cdot k31 \cdot (L1 \cdot L3)^{(1/2)}$,	$2 \cdot i \cdot \pi \cdot f \cdot k32 \cdot (L2 \cdot L3)^{(1/2)}$,	$2 \cdot i \cdot \pi \cdot f \cdot L3$		
0,	0,	0,	1,-1,	0,	0,	-1,	0,	0,	0,	0,	0,	0	0
0,	0,	0,	0,	-1,	0,	0,	-1,	0,	0,	0,	0,	0	0
0,	1,	0,	0,	-1,	0,	0,	0,	-1,	0,	0,	0,	0	0

B

G

$$\left\{ \begin{array}{l}
\frac{1}{R_{gen}}(V_1 - V_3) + I_e = 0 \\
I_{2,0} = \frac{1}{R_{load}}(V_1 - V_2) \\
I_{3,4} = \frac{1}{R_{gen}}(V_1 - V_3) \\
I_{4,0} = I_{3,4} \\
I_e + I_{4,0} + I_{2,0} = \frac{1}{R_{load}}(V_{gnd} - V_2) \\
V_0 = V_1 - V_{gnd} \\
V_{1,1} = j\omega L_1 I_{3,4} + p_{1,2} j\omega k_{12} \sqrt{L_1 L_2} I_{4,0} + p_{1,3} j\omega k_{13} \sqrt{L_1 L_3} I_{2,0} \\
V_{1,2} = j\omega L_2 I_{4,0} + p_{2,1} j\omega k_{21} \sqrt{L_2 L_1} I_{3,4} + p_{2,3} j\omega k_{23} \sqrt{L_2 L_3} I_{2,0} \\
V_{1,3} = j\omega L_3 I_{2,0} + p_{3,1} j\omega k_{31} \sqrt{L_3 L_1} I_{3,4} + p_{3,2} j\omega k_{32} \sqrt{L_2 L_3} I_{4,0} \\
V_{1,1} = V_3 - V_4 \\
V_{1,2} = V_4 - V_{gnd} \\
V_{1,3} = V_2 - V_{gnd}
\end{array} \right.$$

If $p(T_{1,1}) = p(T_{1,2}) = -, p(T_{1,3}) = +$ then $p_{1,3} = p_{2,3} = p_{3,1} = p_{3,2} = -1$

If $p(T_{1,1}) \neq p(T_{1,2})$ then $p_{1,1} = p_{1,2} = -1$

Fig. 14